ACCESSION #: 9309280265
LICENSEE EVENT REPORT (LER)

FACILITY NAME: Oconee Nuclear Station, Unit 1 PAGE: 1 OF 15

DOCKET NUMBER: 05000269

TITLE: INAPPROPRIATE ACTIONS RESULT IN LOSS OF VITAL POWER PANELBOARD AND A REACTOR TRIP
EVENT DATE: 08/23/93 LER #: 93-08-00 REPORT DATE: 09/22/93

OTHER FACILITIES INVOLVED: DOCKET NO: 05000

OPERATING MODE: N POWER LEVEL: 100

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR SECTION:
50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:
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COMPONENT FAILURE DESCRIPTION:
CAUSE: SYSTEM: COMPONENT: MANUFACTURER:
REPORTABLE NPRDS:

SUPPLEMENTAL REPORT EXPECTED: NO

ABSTRACT:

On August 23, 1993 at 1117 hours, with Unit 1 operating at 100% Full Power, a breaker was opened to allow for a peak inverse voltage test on the DC power system diodes. Upon opening the breaker, one of the unit's AC and DC Instrumentation and Control Power Panelboards was lost. The supply breaker input leads in the alternate power path were found rolled, causing the loss. The loss of these power panelboards resulted in the loss of the 125v DC Electro-Hydraulic Control circuit, tripping the Main Turbine and causing an anticipatory reactor trip. Main Feedwater system responded to the reactor trip; however, due to an inappropriately installed Output Limiter card in the Integrated Control System, Main Feedwater Pump speed was limited. This resulted in the initiation of the "Dryout Protection" circuit, automatically starting both Motor Driven Emergency Feedwater Pumps. The root causes of this event are inappropriate Actions (Improper Action, Lack of Attention to Detail, and Failure to Follow Procedures) with contributing cause of

Management Deficiency (Policy or Directive). Corrective actions include procedure changes, directive enhancements and personnel training.

END OF ABSTRACT

BACKGROUND

The Vital DC Control Power System (EIIS:EJ) consisting of two independent and physically separated DC buses (DCA and DCB) provides a source of continuous power for instrumentation and control (I&C) during normal operation and shutdown of each unit. Upon loss of power from the unit's distribution center (DCA or DCB), the affected panelboard will be supplied from the another Oconee unit's distribution center, through the Isolating Diode Assembly.

Isolating Diode Assemblies ensure a source of power to four separate DC I&C Panelboards without interruption by allowing the connecting of separate battery systems to a single load. The functions of the diode assemblies are to block the flow of current from one DC distribution system to the other. With a series - parallel arrangement of diodes, either an open circuited or short circuited diode can be tolerated without affecting the operability of the diode assembly.

Each DC I&C Panelboard (1DIA, 1DIB, 1DIC and 1DID) supplies an associated Static Inverter of which each supplies a Vital AC Instrumentation Power Panelboard (EIIS:ED)(1KVIA, 1KVIB, 1KVIC and 1KVID). The Power Panelboards supply power to vital instrumentation and control loads during normal operating conditions. Backup power to the AC Power Panelboards is supplied from an alternate AC Regulated Power Panel. This arrangement allows maintenance on the inverter while power is maintained to the Vital AC Instrumentation power panelboards.

The Integrated Control System (ICS)[EIIS:JA] provides fully automatic control of reactor power, steam generation rate, and generated load. Within the ICS, the feedwater subsystem has the responsibility of controlling feedwater flow. ICS controls the amount of flow by throttling two sets of control valves, one set for each SG, and Main Feedwater (MFDW) (EIIS:SJ) pump speed to ensure pump discharge pressure is sufficient to force water into the SGs.

The Reactor Protective System (RPS) [EIIS:JC] is supplied from the four redundant Vital AC Instrumentation Power Panelboards. RPS monitors parameters related to the safe operation of the plant and protects the core against fuel clad damage and the RCS against damage caused by high

system pressure. There are four RPS channels. It takes actuation of at least two of these channels to produce a reactor trip signal. Thus, two out-of-four logic is produced. The generated trip signal will open all Control Rod Drive breakers. Two anticipatory trip signals will actuate the RPS. One is the Main Turbine Trip Anticipatory Trip and the other is both MFDW Pumps Tripped Anticipatory Trip. Each of these will produce an RPS signal to

trip the reactor if proper conditions exist. These trips prevent challenging the Power Operated Relief Valve.

The Emergency Feedwater System (EFDW)(EIIS:BA) is designed to start automatically upon the loss of FDW as detected by low control oil pressure or low FDW pump discharge pressure. Additionally, both Motor Driven Emergency Feedwater (MDEFDW) pumps will automatically start if both channels of either "A" or "B" steam generator level decreases to less than 21 inches on the Extended Startup range for 30 seconds ("Dryout Protection"). The Turbine Driven EFDW pump is not part of the "Dryout Protection" circuit. SG levels will be controlled automatically by the EFDW Control Valves. All EFDW automatic initiation logic and control features are independent of the ICS.

EVENT DESCRIPTION

On December 24, 1992, during a Unit 1 refueling outage, Instrument and Electrical Technicians (IAE Techs) began performing IP/O/B/325/3 (ICS FDWPT Speed Control Calibration). On December 28, 1992, the IAE Techs found that a control module did not function within tolerance. They reviewed a listing of available spare parts and obtained and installed a Bailey Meter Company Proportional Integral Universal, part # 6620255A10. However, this part contained an Output Limiter card. The correct replacement is part # 6620255A09, without an Output Limiter card. With the new part installed. the control module was calibrated within tolerances.

On February 27, 1993, IP/O/A/3000/6 (Isolating Transfer Diode Preventive Maintenance and Peak Inverse Voltage Test) on Unit 1 was completed. No problems were found during the test and the Isolating Diode Assemblies were returned to service.

On May 18, 1993, IP/O/A/3011/13 (Molded Case Circuit Breaker Test and Inspection) was performed on one of the Unit 2 breakers that supply back up power to Unit 1 (1ADA supply breaker, circuit # 2) (See attachments 1 & 2). During the inspection, 1ADA supply breaker, circuit # 2 was

found cracked and was replaced. The replacement breaker was satisfactorily bench tested and independently verified per IP/O/A/3011/13.

On August 23, 1993, at approximately 1100 hours, with the unit at 100 percent full power, IAE Techs and a Non-Licensed Operator began establishing conditions necessary to perform IP/O/A/3000/6. At approximately 1115 hours, the IAE Techs tested 1ADA input and output breakers, circuit # 2 for voltage to verify that the circuit breakers were closed (See attachments 1 & 2).

At 1117 hours, 1ADA input and output breakers, circuit # 1 were opened per IP/O/3000/6 and the following events occurred:

A. Power was lost to power panelboards 1DIA and 1KVIA.
B. The Main Turbine tripped by the de-energizing of the 125v DC Electro-hydraulic control circuitry.
C. The Reactor tripped on Main Turbine anticipatory trip signal.
D. The Operators took manual actions as directed by the EP/1/A/1800/01 (Emergency Operating Procedure).
E. Station auxiliary electrical 1TB Switchgear and Main Feeder Bus (MFB) (EIIS:EA) # 2 transferred from Main Transformer (1T) to Start-up Transformer (CT-1). No 4160V loads were lost during this transfer.
F. Due to the loss of 1D1A, control power to the closing circuit of 1TA (6900V) supply breaker was lost; therefore, 1TA was de-energized. By losing 1TA, 1A1 and 1B1 Reactor Coolant Pumps (RCP) de-energized, but the supply breakers remained closed.
G. Power was lost to the Radiation Monitors Control room indications.
H. Various instrumentation and controls were Ions in the control room.

Also, at this time the standby High Pressure Injection (EIIS:BG) Pump (HPIP) 1B automatically started to maintain RCP seal flow and the Emergency Condenser Cooling Water (EIIS:BS) Gravity Flow valves opened due to loss of DC power to the control circuit.

At 1124 hours, the IAE Techs, attempting to return the diode assembly back to normal, closed 1ADA circuit # 1 input and output breakers. Upon energizing power panelboard 1DIA, power was returned to the closing circuit of 1TA supply breaker. 1TA transferred to CT-1 and 1TA bus was reenergized. With 1A1 and 1B1 RCP breakers closed, 1A1 and 1B1 RCPS attempted to start. The Control Room Operators (CROs) observed the RCP

amperage indication go off scale high (as in a normal start). Because both RCPs were started simultaneously, approximately 7 to 8 second later, 1TA bus cleared due to an overcurrent condition on the bus. After regaining power to 1DIA power panelboard, 1DIA inverter power fuse blew and 1DIA power panelboard breaker # 33 (feeder to the inverter) opened.

Post trip, the Main Feedwater (MFDW) system experienced control problems. FDW Startup control valves opened to control steam generator level. The FDW Pumps (FDWP) speed should have increased to recover FDW valve differential pressure. However, speed control was limited due to the inappropriate presence of the Output Limiter card in the Integrated Control System (ICS) control module and FDW valve differential pressure decreased to zero.

At 1130:54 hours, due to the limited FDW flow, 1A steam generator level decreased to 21 inches on the Extended Startup Range level indication. Approximately thirty seconds later, at 1131:28 hours, both 1A and 1B Motor Driven EFDW Pumps (EFDWP) automatically started on "Dryout Protection" circuit and EFDW level control valves (1FDW-315 and 316) increased flow to approximately 500 to 600 gpm. The CROs took manual control of 1FDW-315 and 316 to reduce flow rate to approximately 200 gpm, and to return steam generator level to approximately 30 inches. This action was taken to prevent a potential Reactor Coolant System (RCS) overcooling event. With placing 1FDW-315 and 316 controls in manual and the steam generator levels raised above 21 inches, the "Dryout Protection" circuit reset. Consequently, when the CROs returned 1FDW-315 and 316 to automatic, no control signal existed and the valves travelled in the closed direction per demand. Unable to control steam generator levels at 30 inches with 1FDW-315 and 316 in automatic, the CROs, within the guidance of AP/1/A/1700/19 (Loss of Feedwater), placed them in manual and controlled levels at approximately 30 inches.

Specific post-trip parameters remained within the trip envelope and acceptable limits. Control Rod drive breakers tripped and all Control Rods (EIIS:RODS) inserted into the core. RCS pressure increased to 2203 psig, then decreased to 1855 psig and controlled at approximately 2155 psig. Pressurizer inventory remained on scale from a low of 81.5 inches to a high of 149 inches. RCS temperature converged smoothly to approximately 555 degrees F. Steam Generator pressure reached a low of approximately 970 psig post-trip to a high of approximately 1100 psig post-trip, then controlled at approximately 1015 psig. Main Steam Relief Valves reseated within minimum reseat pressures.

At 1230 hours, a trip recovery and problem resolution meeting was held. This type of meeting was periodically held throughout the next few days until the unit was returned to service.

At 1352 hours, Static Inverter 1DIA was aligned to "AC Line" position, re-establishing the various control room instrumentation and controls lost.

At approximately 1600 hours, a work order was issued to investigate the problem with the ICS MFDW pump controls. The inappropriate Limiter card was identified, removed then the associated controls functioned correctly.

At 1615 hours, a Significant Event Investigation Team (SEIT) was initiated to assist in the determination of the course of action and the root cause(s) of the unit trip.

At 1627 hours, Unit 1 reactor building was entered to assess possible damage to 1A1 and 1B1 RCP thrust bearings due to the attempted start without the oil lift pumps.

At approximately 1700 hours, two additional work orders were issued to check Units 2 and 3 for similarly installed Output Limiter cards as Unit 1. Unit 2 and 3 contained no Output Limiter cards. A review was conducted of Integrated Control System and Non-Nuclear Instrumentation modules to ensure that all modules that specifically require that no Output Limiter card exist were tested in a manner to ensure that the Output Limiter card did not exist.

Troubleshooting of the 1ADA diode problem began, but due to the extensive system alignment and Limiting Conditions for Operations concerns, additional procedural guidance had to be developed.

At 2351 hours, 1TA bus was reenergized.

On August 24, 1993, at 0900 hours, a Conference call to the NRC was made to identify the cause(s) of the Unit 1 trip and to explain the course of action to be taken to return the plant to power operations.

At 1330 and 1401 hours, 1A1 and 1B1 RCPs were started.

At 1640 hours, per a previous commitment, IP/O/A/330/3A (CRD Rod Drop Time Test) and PT/O/A/300/1 (Control Rod Drive Mechanism Trip Test) were completed successfully.

The following actions were taken to establish conditions necessary for tenting and investigating the 1DIA problems:

2036 hours electrical auxiliaries were aligned for back charge of the Main Transformer.
2207 hours Unit 1's Emergency Condenser Cooling Water (EIIS:BS) system valves were de-energized.
2237 hours 1TA bus was de-energized.
2251 hours CT-1 was taken out of service
2258 hours 1D1A was removed from service.
2304 hours Unit 1's Emergency Air Ejector was taken out of service.
2305 hours Standby bus voltage sensing circuits phase A bus #1 and bus #2 were declared inoperable.

2306 hours The following equipment were declared inoperable due to the loss of the breaker's DC control power 1A Reactor Building Spray Train (EIIS:BE), 1A Low Pressure Injection Train (EIIS-BP), A Low Pressure Service Water pump (EIIS:BI), IA High Pressure Injection pump (EIIS:BG) and B High Pressure Service Water pump (EIIS:KP).
2336 hours 1DIA panel board was declared out of service.

On August 25, 1993, at 0300 hours, while troubleshooting 1ADA, 1D1A was deenergized a second time per a temporary procedure change. Voltage and polarity readings were taken across 1ADA input breaker circuit # 2. Investigations revealed that the leads were reversed at the power supply breaker from 2DCA. With polarity reversed, 1ADA would not supply power to the 1DIA power panelboard from 2DCA. A Temporary Station Modification (TSM) was initiated to correct the reversed leads at the input of 1ADA input breaker circuit t 2 breaker. (See Attachments 1 & 2) 1DIA remained do-energized until the TSM was installed.

Upon finding the rolled leads, the work history of the breaker was reviewed and it was concluded that the rolled leads occurred on May 18, 1993 during the performance of IP/O/A/3011/13. At approximately 0900 hours, all associated breakers were tested for correct polarity and no problems were indicated.

At 1811 hours, the TSM and testing procedure was completed on 1ADA. Also. 1ADB, 1ADC and 1ADD were inspected for correct polarity. No problems were found during the inspection. The following equipment was returned to service at 1815 hours:

Standby bus voltage sensing circuits phase A bus #1 and bus #2. 1A Reactor Building Spray Train, 1A Low Pressure Injection Train, A Low Pressure Service Water pump, 1A High Pressure Injection pump and B High Pressure Service Water pump.

At 1830 hours. Startup Transformer CT-1 was energized. At 1855 hours, 1TA bus was re-energized.

At 1934 hours, Unit 1's ECCW system was returned to service.

At 1945 hours, 1DIA DC power panelboard was returned to service.

At 2030 hours, station auxiliaries were transferred to CT-1 and PCBs 20 and 21 were opened securing from the back charge of the Main Transformer alignment.

At 2030 hours, 1DIA Inverter was returned to service and 1KVIA Power Panelboard was transferred from "AC Line" to the inverter.

On August 26, 1993, at 0159 hours, the CROs commenced a reactor start up and at 0307 hours, the reactor was critical.

At 1241 hours, unit 1's electrical generator was placed "on-line."

CONCLUSIONS

On May 18, 1993, the leads from Distribution Center 2DCA to diode 1ADA supply breaker, circuit # 2 were rolled during replacement, preventing circuit # 2 from passing current (See attachments 1 & 2). Thus, circuit # 2 had not been functioning properly from the time of installation of the new 2DCA supply breaker. No polarity checks were made nor felt necessary at that time. When the circuit # 1 breakers were opened, the diodes did not supply current from 2DCA and the associated vital power panelboards were lost, specifically, the 125v DC Electro-hydraulic control circuitry, tripping Unit 1.

The four Instrumentation and Electrical technicians (IAE Techs) involved in the breaker replacement were from the same team and had worked together often and had used the same labeling convention on previous jobs. However, on this job, they were divided into a "day" and a "night" team. The "night" team had lifted the leads and the "day" team had landed the leads. Several events may have occurred that could have resulted in the rolled leads. The team lifting the leads could have

mislabeled the leads, diverting from the informal convention, or the team landing the leads did not follow the convention or became confused as to the convention, thus landing the leads improperly. No specific guidance was given in a procedure or directive on the method to be use.

Maintenance Directive (MD) 4.4.13 (ONS I&E Configuration Control Work Practice), section 5.5.2 states that "In determining the marking method and information, the technician should attempt to mark leads in such a way that, if necessary, another technician could reconnect the leads using the leads markings". The convention for labeling phases used by most IAE Techs was "1", "2", "3" top to bottom or left to right depending on the orientation of the breaker. However, IP/O/A/3011/013, step 10.11.2 (Notes:) does give specific directions on how to align the breaker (upright) and the nomenclature for the phases (left to right). This could have been a confusion factor for landing the leads, because the breaker is installed in the cabinet on its side and this changes how the convention is used. Based on the information received through interviews, both members

of each team understood MD 4.4.13, the convention and had used the informal convention for lifting and landing the leads successfully in the past. Per IP/O/A/3011/013, step 10.21, landing of the leads had been independently verified. No polarity or voltage checks were performed to verify correct alignment, thus the post maintenance testing was inadequate.

Therefore, the root cause of the rolled diode input breaker leads is Inappropriate Action, Improper Action, Lack of Attention to Detail.

During the performance of IP/O/B/325/3 (Integrated Control System (ICS) FDWPT Speed Control Calibration), the Proportional Integral Universal Module was replaced. Module part # 6620255AO9 was required that has no Output Limiter card, but module # 6620255A10 with an Output Limiter card was installed.

Several checks and balances failed to maintain adequate control of the replacement of the Proportional Integral Universal Module. The IAE Techs did not make a comparison check between the new replacement module and the old module. If these comparisons had been made and the difference between the two numbers understood, then it would have been possible to prevent this improper replacement. Several other key controls were missing that could have prevented this occurrence are:

o No procedure exists that specifically directs the actions

necessary for the replacement of the ICS modules.
o Modules of both types (with and without Output Limiter cards) were maintained under one Duke inventory control number.
o Identifying the appropriate module would have had to be done by visual verification or electronic checks for the existence of the card.
o Modules have been modified (cards removed) and returned to storage without any identifying codes, tags or numbers.
o The existing procedure does not give adequate guidance to check fully the module throughout its range ensuring the lack of or the existence of an Output Limiter card.

Therefore, the root cause of the improper module replacement is Management Deficiency, Lack of Policy, Directive or Procedure.

In addition to the main issues of this report, Problem Investigation Program 0-093-375 was generated to address momentary loss of Radiation Monitors indications in the Control Room during trips.

A review of events over the last two years, indicate that the Instrumentation and Electrical group was involved in several similarly classified events, i.e., Inappropriate Action. Licensee Event Reports

287/93-01, 287/92-01 and 269/91-06 were due to Inappropriate Actions, Improper Actions or Inattention to Details. However, none of these events involved the same equipment. Therefore, the corrective actions issued as a result of those events could not have prevented this event. Problem Investigation Report 1-093-0639 (Loss of 2DIB Inverter) identified a problem with a loss of the AC/DC Power Panelboards. As a result, the corrective actions from that event developed a test to assure the availability of power from the alternate unit. This test was inadequate in proving that power was available from the alternate unit. A IAE Work Quality Improvement team had been previously established to identify and implement solutions to improve work practices in IAE.

There were no personnel injuries, releases of radioactive materials, or NPRDS reportable equipment failures associated with this event.

CORRECTIVE ACTIONS

Immediate

1. Operations personnel took the appropriate actions per the Emergency Operating Procedure to bring the unit to a stable hot

shutdown condition.

Subsequent

1. Static Inverter 1DIA was aligned to "AC Line."
2. Significant Event Investigation Team (SEIT) was initiated.
3. Establish conditions necessary for testing and investigating the 1DIA problems.
4. During the troubleshooting of 1ADA. 1DIA was de-energized again per temporary procedure change. Voltage and polarity readings were taken across 1ADA input breaker circuit # 2 that revealed that the leads were reversed at the power supply breaker from 2DCA.
5. 1ADB, 1ADC and 1ADD were inspected for correct polarity.
6. Temporary Station Modification was initiated to correct the reversed leads at the 1ADA input breaker circuit # 2 breaker.
7. Completed OP/1&2/A/1107/10 (Operation of the Batteries and Battery Chargers) enclosure 3.10 for 1DIA DC power panelboard.
8. 1DIA Inverter was returned to service and 1KVIA Power Panelboard was transferred from "AC Line" to the inverter.
9. A work order was issued to investigate the problem with Unit 1's Feedwater pump control circuitry. An inappropriate Output Limiter card was found and removed. Module was functionally tested satisfactorily.

10. A work orders were issued to check Units 2 and 3 for the Output Limiter card.
11. A review was conducted of Integrated Control System and Non-Nuclear modules to ensure that all modules that specifically require that no Output Limiter card exist were tested to ensure that the Output Limiter card did not exist in these modules.

Planned

1. Instrumentation and Electrical (IAE) will initiate a procedure change to IP/O/B/325/03 (Integrated Control System (ICS) FDWPT Speed Control Calibration) to tent the Bailey ICS modules in such a manner to ensure that an Output Limiter card does not exist unless specified by the procedure.
2. IAE will develop a generic Training and Qualification guide for the ICS to include training on the different module part numbers and their associated component functions.
3. Commodities and Facilities with IAE will develop a system to

identify Bailey ICS modules in stock that have the same part number. Once identified, each Bailey ICS module with a unique manufacturer part number should be assigned an individual number.
4. IAE will investigate possible enhancements to Maintenance Directive 4.4.13 (ONS IAE Configuration Control Work Practices) and any enhancements made will be communicated or training provided as applicable.
5. IAE will reinforce configuration control expectations with the appropriate personnel.
6. IAE will change IP/O/A/3011/13 (Molded Case Circuit Breaker Test and Inspection) to improve Post Maintenance Testing.
7. IAE, Component Engineering and Work Control will investigate possible enhancements to the Post Maintenance Testing (PMT) program. These enhancements should focus on the implementation process of the PMT program.
8. Operations will reemphasize to all operators the logic and functions of the Emergency Feedwater level control circuitry.
9. Component Engineering will review IP/O/A/3000/6 (Isolating Transfer Diode Preventive Maintenance and Peak Inverse Voltage Test) to ensure that the procedural requirements for verification of the alternate source is available.

SAFETY ANALYSIS

The reactor tripped on an anticipatory trip signal from the Reactor Protective System (RPS). All full length control rods dropped into the core and the reactor was shutdown and maintained in a safe shutdown condition. The pressurizer safety valves and the power operated relief valve were not actuated. There were no Engineering Safety (ES) Features Actuation System initiation. There was no loss of Reactor Coolant System water inventory.

Reactor Coolant system inventory, pressure and temperatures were all maintained within the post-transient envelope. Secondary system responded as expected during low steam generator level conditions. Both steam generator levels decreased actuating "Dryout Protection". Operator manual actions maintained levels at or near setpoint. Steam generator pressures were maintained at or near their setpoint.

Operability of the Emergency Feedwater system assures the capability to remove decay heat in the event that the Main Feedwater system is inoperable. The Control Room Operator has sufficient Control Room indications of Steam Generator level and pressure and would immediately

be aware of any degraded situation upon which to take the appropriate manual actions to maintain Steam Generator inventory. Also, a sufficient depth of backup measures are provided to allow the Steam Generator water inventory to be maintained by any one of diverse methods (i.e., Hotwell and Condensate Booster Pumps, supply from another Unit's emergency feedwater system, Auxiliary Service Water system or Standby Shutdown Facility Auxiliary Service Water system). During an event where Emergency Feedwater would be required, AP/1/A/1700/19 (Loss of Feedwater) gives specific directions to the operator to ensure that adequate feedwater flow is available.

Each Unit's Vital DC Control Power System has two redundant batteries which supply two redundant DC distribution Busses. Each DC distribution bus supplies two of four redundant string of the AC/DC Vital and Control System. A string consists of a pair of isolating transfer diodes, a DC power panelboard, a static inverter and an AC power panelboard. Each unit is capable of losing one string of the AC/DC Vital and Control System without affecting any RPS or ES protective system function. With the loss of the 1ADA diode, all other strings were available to functions as necessary maintaining the required three of four strings. The loss of 1DIA resulted in the loss of the four odd channels of the ES system; however, the redundant four even channels were available to provide safety functions. The odd channels were made available within approximately seven minutes.

The following aspects of this event were reviewed by the Duke Severe Accident Analysis Section:
A. The reactor trip and loss of Main Feedwater with a loss of the Vital Instrumentation and Control bus.
B. The loss of Vital Instrumentation and Control bus (with respect to Loss of Coolant Accident concerns).
C. The past operability of the backup Vital Instrumentation and Control power supply.
D. The Main Feedwater pump speed control problem (the need for manual speed control after reactor trip).

None of these conditions were found to significantly add to the risk of core damage probability. This event is estimated to be less than the screening value for precursor considerations.

This event did not result in the release of any radioactive materials, uncontrolled radiation exposures, or personnel injuries; therefore, the health and safety of the public was not compromised.

Figure "Attachment 1, Instrumentation Vital Buses" omitted.

Figure "Attachment 2, 2DCA Compartment 3A" omitted.

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DUKEPOWER

September 22, 1993

U. S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

Subject: Oconee Nuclear Station
Docket Nos. 50-269, -270, -287
LER 269/93-08

Gentlemen:

Pursuant to 10 CFR 50.73 Sections (a)(1) and (d), attached is Licensee Event Report (LER) 269/93-08, concerning the loss of vital power panelboards and a reactor trip.

This report is being submitted in accordance with 10 CFR 50.73 (a)(2)(iv). This event is considered to be of no significance with respect to the health and safety of the public.

Very truly yours,

J. W. Hampton
Vice President

/ftr

Attachment

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*** END OF DOCUMENT ***